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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,539	07/23/2003	Hirohito Yamamoto	357672000510	7499

25227 7590 09/30/2004  
MORRISON & FOERSTER LLP  
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EXAMINER

LEWIS, AARON J

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/624,539

Applicant(s)

YAMAMOTO ET AL.

Examiner

AARON J. LEWIS

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 6,7,9 and 23-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6,7 and 9 is/are allowed.
- 6) ☒ Claim(s) 23-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross et al. ('456) in view of Maehara et al. ('082).

As to claim 23, Ross et al. disclose mesh plate (69) used to produce an ultrasonic atomizing action, comprising a single plate-shaped body having two surfaces overall and formed to include a multiplicity of minute holes (77) passing through the plate-shaped body from one surface to the other surface (col.6, lines 36-42), said plate-shaped body being continuously deformed at the location of each minute hole in such a manner that each minute hole flares (col.6, lines 40-42) in a direction from the one surface to the other surface.

The difference between Ross et al. and claim 23 is a groove or recess is formed in said one surface between mutually adjacent ones of the minute holes.

Maehara et al., in a mesh plate used to produce an ultrasonic atomizing action, teach a groove or recess (13a) is formed in said one surface between mutually adjacent ones of the minute holes for the purpose of creating a divergent stream of droplets at high speeds (col.3, lines 9-11 and col.4, lines 26-30).

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It would have been obvious to modify the shape of the mesh plate of Ross et al. to include a groove or recess between mutually adjacent ones of the minute holes because it would have provided a means for creating a divergent stream of droplets at high speeds as taught by Maehara et al..

As to claim 24, Ross et al. (col.6, lines 6-8) disclose bonding of mesh plate to the device. It would have been obvious to modify the shape of the outer portions of the mesh plate of Ross et al. to include cut-outs of varying sizes at its periphery in an effort to provide a means for connection of the mesh plate to the device as an obvious matter of design choice with no new or unobvious results accruing. Cut outs would enable other forms of selectively removable connectors to be employed to attach the mesh to the device and also would enable the mesh to be removed for cleaning or replacement.

As to claim 25, said minute holes (77) of Ross et al. (fig.10) are spaced over the surface of the mesh plate. The particular pattern of spacing of the holes can be arrived at through mere routine obvious experimentation and observation with no criticality seen in any particular pattern of spacing including a hexagonal pattern. That is, inasmuch as applicant does not point out any particular criticality in a hexagonal pattern of spacing, the pattern illustrated in Ross et al. (fig.10) is deemed to function as well as a hexagonal pattern of spacing.

As to claim 26, Ross et al. (fig.10) illustrates spaces between holes (77). These spaces are readable upon the claimed small area devoid of formation of holes yet surrounded by holes.

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As to claim 27, Maehara et al. (fig.2) illustrates an area devoid of said minute holes being present at a central portion. That is, holes (13b) are concentrated in the center of the groove or recess but an area immediately surrounding the holes (13b) is devoid of holes, that area being readable upon a central portion.

***Allowable Subject Matter***

3. Claims 6,7,9 are allowed.

***Conclusion***


4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The balance of the art is cited to show relevant ultrasonic atomizers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON J. LEWIS whose telephone number is (703) 308-0716. The examiner can normally be reached on 9:30AM-6:00PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, HENRY A. BENNETT can be reached on (703) 308-0101. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
AARON J. LEWIS  
Primary Examiner  
Art Unit 3743

Aaron J. Lewis  
September 28, 2004